

## IN THE CLAIMS

Amend the claims as shown below by the markings.

Claims 1-43 (cancelled)

44. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;

at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said at least one serial branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;

at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;

at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,
- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and

g) the interdigital transducers being weighted and exhibiting a different weighting; and  
both coupled interdigital transducers being arranged in a serial branch.

45. (Previously Presented) A component according to claim 44, in which both coupled interdigital transducers are arranged in a same serial branch, and in that both terminal electrode fingers adjacent to one another of the coupled interdigital transducers are respectively connected with busbars of the interdigital transducers that exhibit a lowest potential difference relative to one another.

46. (Previously Presented) A component according to claim 44, in which one of a metallized delay line and a reflector structure is arranged between the two interdigital transducers.

47. (Previously Presented) A component according to claim 44, in which at least two serial interdigital transducers following in succession in a circuit in the serial branch are arranged next to one another transverse to a propagation direction of the acoustic surface wave and thus form a cascade, and in which one of said interdigital transducers is acoustically coupled with an additional interdigital transducer.

48. (Cancelled)

49. (Currently Amended) A component operating with surface-proximal acoustic waves, said component comprising:

at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;

at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;

at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;

at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,
- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and
- g) the interdigital transducers being weighted and exhibiting a different

weighting;

at least two serial interdigital transducers following in succession in circuit in the serial branch are arranged next to one another transverse to the propagation direction of the acoustic surface wave to form a first electrical cascade;

another at least two interdigital transducers following in succession in circuit in the serial branch or in the parallel branch and arranged next to one another to form a second electrical cascade; ~~and~~

two of the interdigital transducers coupled to one another are in a same cascade; and

the interdigital transducers of the first electrical cascade being acoustically coupled with corresponding ones of the interdigital transducers of the second cascade.

50. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first

and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;

at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;

at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;

at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,
- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and
- g) the interdigital transducers being weighted and exhibiting a different weighting; and

at least three serial interdigital transducers arranged next to one another are part of a cascade, in which the three interdigital transducers are acoustically coupled, in which both outer interdigital transducers are circuited parallel to one another and respectively in series relative to a center interdigital transducer of the three interdigital transducers.

51. (Previously Presented) A component according to claim 44, in which two serial interdigital transducers are coupled that are not arranged one directly after the other in the series circuit, and between which in a circuit in the serial branch is arranged at least one further acoustically uncoupled interdigital transducer.

52. (Previously Presented) A component according to claim 44 , in which the two acoustically coupled interdigital transducers are separated from one another via an acoustically transmissive intermediate reflector that comprises a number of n reflector strips, whereby n is a positive natural number with  $1 \leq n \leq 100$ .

53. (Previously Presented) A component according to claim 44, in which at least two serial interdigital transducers are provided and acoustically coupled with one another and in which at least two parallel branches are provided, each with a parallel interdigital transducer, so that both parallel interdigital transducers are acoustically coupled.

54. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

- at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;
- at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;
- at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;
- at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:
  - a) the interdigital transducers possessing a different aperture,
  - b) the interdigital transducers possessing a different pitch,
  - c) the interdigital transducers belong to different branches of the component,
  - d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,

- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and
- g) the interdigital transducers being weighted and exhibiting a different weighting; and

two parallel interdigital transducers are provided that are part of a DMS filter.

55. (Previously Presented) A component according to claim 44, in which in the serial branch a DMS structure is arranged that is acoustically coupled with at least one serial interdigital transducer.

56. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;

at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;

at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;

at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,

- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
  - e) the interdigital transducers comprising a different number of interdigital electrode fingers,
  - f) the interdigital transducers exhibiting a different metallization ratio, and
  - g) the interdigital transducers being weighted and exhibiting a different weighting; and
- all serial interdigital transducers are arranged in a common serial track and all parallel interdigital transducers are arranged in a common parallel track.

57. (Previously Presented) A component according to claim 56, in which an aperture of the parallel track is larger than an aperture of the serial track.

58. (Previously Presented) A component according to claim 57, in which the aperture of the serial track is at least  $15\lambda$  large, whereby  $\lambda$  is an acoustic wavelength at a center frequency of the component.

59. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

- at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;
- at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;
- at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;
- at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in the propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the

transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,
- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and
- g) the interdigital transducers being weighted and exhibiting a different

weighting; and

the two interdigital transducers acoustically coupled with one another exhibit a same finger period, however are displaced against each other by an amount  $\Delta x$ , with  $-0.25 < \Delta x/\lambda < 0.25$ , whereby  $\lambda$  is an acoustic wavelength at a center frequency of the component.

60. (Previously Presented) A component according to claim 44, in which the finger period of the parallel interdigital transducers is larger than the finger period of the serial interdigital transducers.

61. (Previously Presented) A component according to claim 44, in which additional elements selected from one-port resonators and DMS tracks are connected serially to the serial interdigital transducers.

62. (Previously Presented) A component operating with surface-proximal acoustic waves, said component comprising:

at least three interdigital transducers being arranged on a surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;



at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting an input and an output of the component and in which all elements contained therein are electrically connected in series;

at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;

at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:

- a) the interdigital transducers possessing a different aperture,
- b) the interdigital transducers possessing a different pitch,
- c) the interdigital transducers belong to different branches of the component,
- d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
- e) the interdigital transducers comprising a different number of interdigital electrode fingers,
- f) the interdigital transducers exhibiting a different metallization ratio, and
- g) the interdigital transducers being weighted and exhibiting a different weighting; and

additional elements selected from one-port resonators and DMS tracks are connected serially to the parallel interdigital transducers.

63. (Previously Presented) A component according to claim 44, in which at least one part of the electrical connections between the interdigital transducers, or between the interdigital transducers, input, output and between the interdigital transducers and the electrical ground are realized as discrete elements selected from a group consisting of capacitors, delay lines, resistors, inductors, bond wires, bumps and other suitable connection elements.

64. (Previously Presented) A component according to claim 44, in which, viewed over a [[the]] length of the interdigital transducer and a reflector, at least one of the finger

period and the metallization ratio varies within one of the interdigital transducer and the reflector.

65. (Cancelled)

66. (Previously Presented) A component according to claim 64, in which actual values for one of the metallization ratio and finger period vary maximally  $\pm 3\%$  around an average value.

67. (Previously Presented) A component according to claim 64, in which, viewed over the length of one of the interdigital transducer and the reflector, actual values for one of the metallization ratio and finger period correspond to the actual values of a periodically sampled continuous function.

68. (Previously Presented) A component according to claim 44, in which a phase shift exists or a different finger period is set between two adjacent elements within an acoustic track, said two adjacent elements being selected from an interdigital transducer and a reflector, whereby the transition between the two adjacent elements is quasi-periodic.

69. (Previously Presented) A component according to claim 44, in which a connection sequence of the electrode fingers to an interdigital transducer is irregularly alternating and the interdigital transducer exhibits a withdrawal weighting.

70. (Previously Presented) A component according to claim 44, in which a position of a transversal gap in one type of interdigital transducer varies viewed over a length of the interdigital transducer.

71. (Previously Presented) A component according to claim 44, in which a size of a transversal gap in one type of interdigital transducer varies viewed over a length of the interdigital transducer.

72. (Previously Presented) A component according to claim 71, wherein a height  $g$  of the transversal gaps is  $g \leq \lambda/4$ .

73. (Previously Presented) A component according to claim 44, in which the interdigital transducers respectively belong to resonators that respectively exhibit a resonance frequency and an anti-resonance frequency, whereby the resonance frequency of the serial interdigital transducers lies in a range of the anti-resonance frequency of the parallel interdigital transducer or slightly above it.

74. (Previously Presented) A component according to claim 44, in which the serial interdigital transducers are detuned against one another.

75. (Previously Presented) A component according to claim 44, in which all apertures and overlappings of the electrode fingers are equal within an acoustic track.

76. (Previously Presented) A component according to claim 85, in which the parallel interdigital transducers are detuned against one another.

77. (Previously Presented) A component according to claim 44, which includes a piezoelectric substrate that exhibits a surface aligned to crystal axes via suitable cut angles, said substrate being known for low losses given surface waves, Raleigh waves, shear waves, leak waves, BGS waves and HPVSAW.

78. (Previously Presented) A component according to claim 77, in which the piezoelectric substrate comprises one of the materials selected from a group consisting of  $\text{LiTaO}_3$ ,  $\text{LiNbO}_3$ , quartz, langasite, langatate,  $\text{GaBO}_4$ ,  $\text{Li}_2\text{B}_4\text{O}_7$ , langanite,  $\text{KnbO}_3$  and GaAs.

79. (Previously Presented) A component according to claim 77, in which the piezoelectric substrate comprises a piezoelectric film that is applied on a carrier substrate.

80. (Previously Presented) A component according to claim 79, in which the piezoelectric film is selected from a group consisting of  $\text{LiTaO}_3$ ,  $\text{LiNbO}_3$ , AlN, ZnO and GaAs.

81. (Currently Amended) A component according to claim 44, in which the interdigital transducers, ~~the reflectors and the conductive structures~~ electrical connections connecting them in circuit are fashioned as metallic structures and are comprised of a

material selected from a group consisting of aluminum, an aluminum alloy and multilayer structures, whereby individual layers of the multilayer structure comprise at least one layer made from a material selected from a group consisting of aluminum, an aluminum alloy, Cu, Zr, Mg, Ti and Sc.

82. (Previously Presented) A component according to claim 81, in which a layer thicknesses  $h$  of the metallic structures are selected in the range of  $1\% < h/\lambda < 15\%$ .

83. (Previously Presented) A component according to claim 81, in which passivation layers are provided over the metallic structures.

84. (Previously Presented) A component according to claim 44, wherein the reference potential to which the at least one parallel branch is connected is a free-floating internal reference potential.

85. (Currently Amended) A component operating with surface-proximal acoustic waves, said component comprising:  
at least three interdigital transducers being arranged on surface of a piezoelectric substrate, said interdigital transducers being respectively provided with a first and a second electrical connection and being electrically circuited with one another via said first and second electrical connections, so that the interdigital transducers are selected from serial and parallel interdigital transducers;  
at least one serial interdigital transducer being arranged in at least one serial branch serving as a signal path, said branch connecting the input and the output of the component and in which all elements contained therein are electrically connected in series;  
at least one parallel branch in which is arranged a parallel interdigital transducer being connected parallel thereto against a reference potential;  
at least one of the serial or parallel interdigital transducers being arranged in series with an additional interdigital transducer in a propagation direction of the acoustic wave, so that both interdigital transducers are acoustically coupled with one another, so that the transducers coupling with each other differ from each other by at least one of the following features selected from a group consisting of:  
a) the interdigital transducers possessing a different aperture,

- b) the interdigital transducers possessing a different pitch,
  - c) the interdigital transducers belong to different branches of the component,
  - d) of the interdigital transducers, at least one is arranged in the serial branch and the transducers being not directly electrically connected with one another,
  - e) the interdigital transducers comprising a different number of interdigital electrode fingers,
  - f) the interdigital transducers exhibiting a different metallization ratio, and
  - g) the interdigital transducers being weighted and exhibiting a different weighting; and
- both coupled interdigital transducers being arranged in a ~~serial~~ parallel branch.